

FAP43

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Hs -MAOGRERDEGP-----HSAGGASLSVRWVQGFPKONVHFVNDNTICYPCGNYVIFINIETKKKTIVLQCS---NGI
Gg MAAAGGERNPGSPQLSAEALGGRCCSSPEETITLEVSVWVQGFNSKNFGFINNOTVCYPCGNYILFLDIKTKKTTALQCO---TGO
Xt -----MSLIRKITIRTAFAVRWVQGINKKKVTFINDHVTCYPCGNFIVFHDINTRKQSFLOCM---TGS
Dr -----MVAEMDVLRFNFVQVQGFNTNGTFRFVDKKTVCYTCGNFIVFLNVTETKERKTLOSP---GSG
Sr -----MDVLGNLEVRWVQGFNNGTFRFVDKKTTCYTCGNFIVFLNMETKSRKTLQSP---GSG
Ci -----MQAYGTLQVWAKGFKGDRLSHVDRDMVCFSCGNSIKFVNVVTGAEVVFOPP---GGA
Tb -----MATNARILGFNSPSALVAAGDFFLLGAGGIVIRRKEESSQWIPCEG---RYA
Tviv -----MSSNAVILGFNSRSSVAVAGDSVLLGAGAGVIVREGDESSQWIPGDG---RYH
Vc -----MAFQTKVAIGYNGSPVAWLGSSEVAWTCGNALVLSLNTKTQRVLKGT---GFG
Cr -----MSIQTRSAVGYSGGOVTWTGPDECAWTCGNNAVVLHTLGSKAQORVLKGT---GFG
Tt -----MSIYESFSYNGSPFQLVFNNTIGFIQGSTLVLDLWDLATDKKDYIHSQ---KNG
Pp -----MSIHSSYCYDGFQFQLAFKDTIAYISGGVLYFWDTONNKKDYIQSS---KNG
Pt -----MFSKKWFNLFSDCTAFTGDKWELLEQDTIGFLAGNTLCKWNLNNKSFVHSQ---RQG
Lb -----MLQSVARVLGCSAPAVFAVHGRRVFLPADNGVVVVEDSYEYLWAPFPI---GKYS
Ag -----MEQNIIRTKALWINPGAVEMACVVGNAAVAIAAGGHILFVNLKTTAKSYYSADSVHSGNG
Da -----MPHAETKWKFGDIRTIAFMGKETIAMASGLHIIFINLNTKEERVEKFDKERGEG
  
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86

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Hs VGVMATNIPCEVVAFSDRKLPPIIYVYSFPGLTRRRTKLK-----NILLDYTLLSFSYCG
Gg VGAFAVNPNRGVLAFSDRKLNPIIYICFPPELNKLTTELK-----HIQLDYTLFAFSFLG
Xt IGAFSVNTYSEVVAFSQDOKLHPSIYVYTFPGFVKRVELKE-----GAOLDYSLIAFSNAA
Dr IGAFTASGORRCIAFSDLGLKPSIFIYKYPELELTSSELK-----TTKLGYTALALCDTG
Sr IGAFTASGHRRCLAFLSDLKLNPSIFVYNPELEOVCKLKG-----TTKLGYTALALCDTG
Ci VCOVTSSSHRRMFVAEAEGLNPIITTYNFPSCEVVCALAE-----GALLGYSOLOFSFNG
Tb IGAFAVSPSAGLLCVTEVKLDVSLHVFRRFPERHHLQCIDN-----VATVDVQHMLFSSDG
Tviv IGVMAFCPEETSVLCLTEVRLNVSLLVFOLPDCDRLOKIDN-----VATVDVEDMLFSPDG
Vc ISCFVSKRYGLIAVAEKALKPNVYIYAISKLOLLAKLSPSELK-----EEHALPGGSSEKQOQANVVTLGITAMGFSGDG
Cr ISCFVAVNKRHGLLAIKAEKGLKPMVTVYSTKTLOPLAKLLPGDREEGAGGGADKPSGSGAVSGKQOSSGPVSVLVGVTCLAFSNDG
Tt FQSFVAHPKKGIIVVAEYSLNPKVFIYSYPOKLLRRTLEN-----VSELEIIQMDISFDG
Pp FQCFVCHHSKOLVFAADYGLKPVVOVFTYPEKKQIOAKV-----ISDLOIIQMDVSDA
Pt FQCFVHYRKNILVVAEYGLNPIVHVYDNENE---YDLVG-----VSPLEILOMEVSNCG
Lb IDKIAVS-AAGVLCIAEKRLHVALHFFDADSMQSLGVAEA-----EVFVSIADIIVFSADG
Ag VACIAGHKLFPIVAFARCTNPRILLVSYANTVLSILEG-----DOTECSYTALCFSES-
Da ACCLAGHPVVPMAFALSERRANPKVRVYTYPSVNKVSECIY-----GERNWTGFISSAFAGT
  
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Hs TYLASYSLLPEFELALWNWESSIILCKKSQPG-MDQVNSFNPMNWRQLCLSSPSTVSVWTIERSNQEHCFRARSVKLPLEDGSF
Gg PYLASYSFFPDFVLSVWNWQENILLCSSESQPG-VAATSI SFNPMNWOQLCFVTESSVTIWCIEERNYDEHCLTONPVKLPDGRGSL
Xt PYLASFSSVDPDHVLTWNWQEGIPLCSESESO-TTYTTLTFNPMNWHQLCSSETSLIVWNIEICDNLYOLKAMPVKLPSEDGTI
Dr PYLVSASPMPDHIITLWNWESSGLPLCSHSLLD-EDISALVFNPMNWCQICAIKSKSLTIWNVERCDNYHLMKPSAVNLPDGDGSA
Sr PYLVCASSMPDHTISLWNWESSVLLCSHPLLG-EDVTALVFNPMNWCQIGAVNLRSLTIWNVERCDNYHLMKPSAVDLPAADGAV
Ci SFFAATSSIPDFSIFVWDWOTGKLCHEKLPGESPVTSLLFNPNLKNREISTISETHVSIWTLLECNEISTMKSKVNVLPPTDGTI
Tb EMALLTCIPTTCVTFYSAARGNRLVKCASTEL-----GGVFCKHLTFPLHRHDCIAVLEPHGVRVIACNMDSATFVPSITL
Tviv DFLAMLTCPMSPCVTFVDVHGMLTKIHTIAL-----ESKFWKSLAFPPQENSLAILESKSVMIATNVVSEFTTPIVCLKL
Vc ERLVICGDEPDCSVIVYSWRKGEVHGRSRLP-----HNQPAHOVSFHPLDPTILATTHSG-TVSVWYLEAMWDRTLFRYO
Cr ERLAVCGDEPDCSVIVYGRKAEVLGRCRMPAA---ASSASSTPASSVSFHPLDASVLATSGPGGACAVWFLPLWEKAVFRPL
Tt KLLLVVNGVPKFEIQVYDLETGQRLSGT-----NSSIPLRNKFIKAQFSPKDTTFCVLYEN-NLVLCIEIFPSFEVDONSQE
Pp NKLLVIVVVPNKEIITVFDLTSNWLSDKNVIRRIEAGEYSSVHLKSGFIKAQFSPONNNIFAVLYEN-VLELYEILPTYEFVNGROE
Pt RYLLLVILGVPKFEICLWDLKEKCR-----KGFQSLPLKLNFIKFTILG-ERILIRYAN-QLQLYQITPHYDNQIQOV
Lb KELFVLGTVPDITVTFIRRSTP-----NGSYSADRVPLOHSEEPKGLLAFGFEQSVVRFVIRWIRSGCIAGY
Ag ELLVALTGVDPDYSLEVYAWRSKELLCK-----KPSSIFCEVORLNCSPSAVFAVCOYAPRKPDCLKWEVH-
Da DYLLTLTSSPKFKAVVWLWRIG-----ECLNTVDITGVSDIYQTMCLSPSPPLITQLGRPSGRLKLYELN-
  
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Hs FNETDVFVQPSLPKDLIYGPVLPPLSAIAGLVGKEAETFRPKDDLY---PLLHPTMHCWTPSTSDLYIGCEEHLLMINGDTLOVTV
Gg N-HEDLFFPYSCDEDPYHGPVMPVSAIAGLVGDKAETFVPRDIIK---PSLHPTAHCWTATSDIYLGCKEGYILAIIDTRKCSASI
Xt GVEEENFNSSAPNGVSYGPVMPKSAVAGLVGEEAEIFIPKEORK---HSVOPSFHCWNATSDLYVGCERKILITISAETQKVIV
Dr IECEPNQSHLLNGKLYLGPOMPTSAIAGLIGDQADNFVPLKLIK---PRLCPSAICWSISSDLYVGCCKEGFLLCNPETLHVSV
Sr IECEANLSCMLSRKLTHTLGPOMPSAIAAGLSDRADDFVPLKQIK---PKLCPSAICWSTSSDLYVGSKEGFLLCVDPDTLLVSV
Ci LSNGEDLASRSGTQROG-FNVHLPSTSTRAGLVGGNADKFEPPELRR---PRVIPSQCWSSRGEIYVCGVGGOLFVFDGASGNPAL
Tb -----SSKGHYFHSQVWTEGLYCGA---GRGOVLLDEL---TDMKNYINCETPHNVNTALLON--GTLFFIG-
Tviv -----DSNGEEFHSFAWGPVGVFCGA---DNGSVILFDELK---MEMOILLTIDTKCAIMALHRT--KAVLLVG-
Vc SLGPGALPPGHDVTVHAWSPHGLYVGT---SGGGLALLDLPSM---TPLVIKASAVASAAAASEPPSPGGTAGGGGAGGG-
Cr OLAAGALPAGAETVCHAWGPGGLYVGT---STGGLVLLDTATM---APLQHAAGGAAGEVAGGASGGASSPTPGASSG-
Tt VLQN--IRIDONNKISEKTFKNIWD---EQNNIYLADY---FVRYLNGTDLSEIMNKDCEYLVEFFVLTQKHLII
Pp ELDKK--IRINKKASYEAEGFSTFIWD---EQNRIYLADKFNIVYLDIVFDQELNQLKPKLTHE SFHOITHFVLTQKHLII
Pt QLELVT--SIDLSAPTIMVODYN--LIDDSKNQOENNIYLIQ---NVLIYLDGNTLFEIARHECHSEIKHLIPTQIHLIV
Lb -----AHGEDGKCFQKCFVSEASIESACVSGPSTMCYITKE---GSLHVYSHERTFQDVEGSLAPAAASMIWVDGTVFI
Ag -----GNIRISRLLIERTVHLELE---TAELPLCVTFLLIDGNLAVVTRAKVFI
Da -----TCSKIVSLTPASLAPSPESRSE---KITSSSWTYDGNLLSDDLGNVYLTPTDGKRRQO
  
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Hs	LN	-----KIEEESPLEDRRFIS-----	-----PVTLVYQKEGVLASGIDG-----
Gg	IORKPLPEHMLKISDMLGYIRREAOKKKDKPKALQRT	-----VVFTMAFCDEGLYTAGIEG-----	
Xt	LAQ	-----KDQDADPLSGVTLLEGN-----	-----IKTMAFHKEGLYIAGKDG-----
Dr	LYK	-----POTEVT--TGNSEMPMQEG-----	-----SFQSLVLQDSKLFAGMES-----
Sr	LYK	-----POTELNPTDDSKTSLQEG-----	-----SFQSLVIQDCNVFAAGMEG-----
Ci	LLG	-----GISDSLVLVGEIECG-----	-----MFHSISLNSSEGLVAGGDDG-----
Tb	-----	-----TECGDVFTYNIDOKAQR-----	-----LLVRLGRSVVRLTLTPDNDVLVATST-----
Tviv	-----	-----TORGVIFSYDVKRELK-----	-----RMSVVRHAVERFLACDDESNVLVSST-----
Vc	-----	-----SAAGAFAVAMTAAAAAGVAPGQPAVVLDAAAGPGAGVSALALNRDHLAVCGTDGDSVHVFSQAPV-----	-----
Cr	-----	-----GAAGGSVVAVVPAVTS-----	-----GAAVTALTLNRDLVAVAGADGSVRVFSVPA-----
Tt	IL	-----ONGKFEWLYKYPANLN-----	-----EDEIKPFKLEKTY--LYDEEKLVNILYN-----
Pp	IH	-----ENGLIEWLWFKYHPKFEN-----	-----DEDQKPFKFDKRY--QYQDEKIINILYN-----
Pt	VY	-----ANAKIEWLYKYITNNLE-----	-----DKVAVPFKVNKKYNLHDHIEVKKIMYN-----
Lb	FTR	-----SGDLLSVNLCGTHHRR-----	-----SLGCLPSCASRLVVTSAE-----
Ag	LAS	-----TGOISOTICNPEPLTTD-----	-----QEY--IPYVFYCKGGLF-----
Da	VLQ	-----SEETTPHLAGPLVVAFR-----	-----GGVAVANTSPKILFYRKP-----

426

Hs	FVYSFIK	-----DRSYMIEDFLEIERPVEHMTFS-----	-----PNYTVLLIQTDKGSVYIYTFGKE-----	-----PTLNKVLDACDG-----
Gg	IILYFYHIR	-----DLOYEMKICADISEPISLTFSS-----	-----PDYTTLLIVTDGOTIYTYEPAHS-----	-----GEAVKLLTAFSS-----
Xt	VLRSTIK	-----GSELKLEDCWSVOESIESISFS-----	-----PNYKMLSIAATCKGSVLYNHRNP-----	-----GETYKVFVDVYSG-----
Dr	VLRSIQIK	-----GNKLEVVQWALEEASAMCFS-----	-----PDGETLLLSNTGCVYRFLKPLK-----	-----DKAVKVLVDLVC-----
Sr	IILRNIIQIK	-----GNKLEVVQWALNEAASSCCP-----	-----PDGETLLIVSNTGCVYRLKPLLN-----	-----DNIVKVLVDLVC-----
Ci	TLRLIOLD	-----NMGVKITELHKGMOPIITCLSFAPPLYVDLVLSTSSGEIOHYSLVER-----	-----	-----ECGPIITTRTG-----
Tb	DVTKISVD	-----TAQSVFVRRRSASDTVKLLVLGG-----	-----LVVIVCLDGLSVTYDQDTNTAG-----	-----HTPVRFPKVVDACV-----
Tviv	DVMKLDIN	-----LASSTTISSRNTGNIVKLVVIGS-----	-----LVVVCVSSDGCFMLYEHEINTAI-----	-----HIAVHFAEKAMDACV-----
Vc	AEALGPPG	-----FSHEVWLARGG--STGVPVSSADCGGPEHTALLGCPDGTIYCAPMGPHTGAG-----	-----VTSRAGYTTATQIGDYPV-----	-----
Cr	AAAAITPEPLA	-----LSHEVWLGRAGPARGVAVASAECEGADHATLLGCPDGTMYRAPLAPKOGG-----	-----	-----GPTHSTVIVDCHV-----
Tt	QTYSKLYAG	-----SNOGSIIIFPVEGETFDIEEEEEQDDKENEHSDNEDESREIEIQTEKKG-----	-----	-----PYPFSPIVFIRE-----
Pp	QDFTKMVAG	-----TOEGSLILPEVAETLEGEEEENLDNEQE--GSDEEKSRIDIDLOTYG-----	-----	-----PFHVGSVIFIKE-----
Pt	QOCTKLIWF	-----IROCYSOYNPYEAQVDQEE-----	-----DKVIDLTHEIEPVKLG-----	-----PYQKGVITFIRE-----
Lb	LLLSTOTGL	-----LAVAVPVVINGGAADSRVLVKGWTEASTLRCLSVNNGASAAWVLRDGSIALYK-----	-----	-----RDDVRVLTPCGV-----
Ag	VSAPDGOVNFY	-----KKQKGTWNOMWSTOSDASYSLLSYSTAEGGLGITTEGFIMRTVLDTDVR-----	-----	-----NVEFOIVKDLDV-----
Da	PAERVKSG	-----SPWKIWEIETSSPVLYLSRH--PQDSILLCSIKGEISEVSVGDDD-----	-----	-----IPRLQIICQG-----

511

Hs	KFOAIDFITPGTOYFMTLTYSGEICVWVLEDCACVSKIYLNLA	-----TVLACCPSSL--SAAVGTEDGSVYFISVYDKE-----	-----
Gg	NLLAADFLSPGDKYCVSVTISGEVQVWVLENGICLSMLNLDIEA	-----TAMACCPSSN--SAAVGTKGGQIYFIDITKVE-----	-----
Xt	DLLAADFLTFGNKYCLSTDISGHVOLWSVEDGRSVSSLSLNIAQ	-----TAMACCPSSN--YAAVGSSTGHIYFIDAMKIE-----	-----
Dr	DFVTAPVYTDRSICLSVREAGVVQLWTLDDGLCMGSILOTHV	-----TSMACCPAQ--YIVVGTATGDVLFVEMTTKQ-----	-----
Sr	DFVAVAPLYTDRSICLSVREAGVVQLWTLDDGLCMGSILOTHV	-----TSVACCPAQ--YVVVGTASGDVLFVEMTTKQ-----	-----
Ci	DFVGAGFTC--AGKLAVTCREDEGLOIWSCEDGSLVASFSLCTR	-----CSLSCCPSSP--VVAIGTWTGHVCYIDTSSLLSEEI-----	-----
Tb	VGSVAVVVYDSG	-----FVRSFTVENTVSVVS--QMKVSD-----	-----CPLTACTSDGVSVLAVCDKNVVFIEVADG-----
Tviv	VNSVLVVAYDSG	-----WVRCFTLNSDATVMTSOTRVSE-----	-----SPLHMCLSDGGSVLAVCDKSVIHYLSVKDG-----
Vc	GRLAGIVPHPGGGAFLTAGADGSVRLWAAEDGRLLARKALSSAQ	-----CALAAAAPGAGLAAVGSETGVVRVVLVLPAPTSGSDAVSG-----	-----
Cr	GRLAGIVPHPGGGAFLTTGSDGSVVRWSTIDGALLGRKALSSAQ	-----TALAAAAPGASLAAVGSETGVVRVVLVLPAPTSGSDAVSG-----	-----
Tt	LENONVVITVTONS	-----YIYFWDIEKKIQVSTFKLNCTI--VCGDIHPNSK--TLILGSSGVIRILDISNLN-----	-----
Pp	LKKMNCVLTISSEG	-----RFLFLWNIQOQLVFSHFKAOM--SSACLDNSE--SILLIGSOOGVIRILDVSDFO-----	-----
Pt	YKQHNVIIVCGSDQG	-----VLFEMDVISKQPLSSFNIEGKI--ISGELIEN--LIIGTSAGVLRFYNVADIR-----	-----
Lb	RRAAVHACILNSSEIVILFEDGTLRCFDCVGEREVWSHQCLEWA	-----PTFVEADGSG--TVACCGRDALRFLRCMDDG-----	-----
Ag	GKFFNCLNDAQOOLVGIKPAAGTVKLLQLETGAAGDTITVGR	-----VTSIAHHPMPFFVVGSDTGYLHLVAVDQKQ-----	-----
Da	SGHLFLVSVHPGRFIATVDSFDGFNLFESLTGKLTGRMWLGEYGRALSVLSHPVLPPLAISTDTGRCLILNVAEAS	-----	-----

596

Hs	-----SPQVVHKAFLSESSVQHVVDQGLFLLVGTAEK--KVFIINANS--SSSFQIIGFTEVAKDILQISTVSLLETDIVEVM-----	-----
Gg	-----APRVVHRIFLSKFPVLSLHYDQSGQFLIRAMEG--YIFILDARP--SKLFOVLGYVVLAGEVLSLSVVSDFKNNLVEVI-----	-----
Xt	-----ALRVVORMRLYCVPOHIFDPRGNFLLTGAADR--HIFILDARP--SHSFEVLGYIVVCGEILTLSSLSSEDSOQTKAM-----	-----
Dr	-----KPRLVHRVHLYHVPVDHLVFDQGNCLITGASDS--RVFVLDARP--SKGFDIIGWIEAPGAVNLSTQYHQESKQIKVL-----	-----
Sr	-----KPRLVHRVHLYHVPVDHLVFDQGNCLITGASDS--RMFVLDARP--SKGFDIIGWIEAPGAVNLSTQYTESKQVKVL-----	-----
Ci	-----NLROVGSTRIHHSPTYLKYNAGGDFLLTASEDEPHIFIIDAKP--SSGFQICIGYVDCDGTIKDISIHN--SSTSTVL-----	-----
Tb	-----LLETAASSDIFACAVTNLRWAVNGGRSVLAACNNGEVHNLCTFG--KCDASAGVTVDMTWRDLDFVNDLFLPLYG-----	-----
Tviv	-----VLQLOTTSEAIASTITNLCWSANNEQSLAACSNGEYLIKYE--SDDLGAAPAVIDVIWRLDFVTELLPLFA-----	-----
Vc	-----GTOPSOQLRVMYRRRLHTSAIDALAFSPNND--LLLSAGRDGAVWLLALDA--RTGSCRALGFVTLPPGERVMAVTPRAG-----	-----
Cr	-----APLP--ALRVLFRORLHSAPVDLVFSPAND--LLLSAGRDGIAWLCSVDA--RGGVRVRLGCLSLPPGERVLSATWPRSDGSGAA-----	-----
Tt	-----GVHLLKQIKVLKDKPVSNLHFNPDGSMFVSSSTESKKIYLINS--TKYNIIGYIALPAKVNTACWNTSQKLV-----	-----
Pp	-----KIOMVKKIRLRFKNKATIEFLFSKDOSLILAGSSDSKKAFFLSTONSRRKKPYRVVGYSKLPYKINYLWNSSNVHK-----	-----
Pt	-----QPVLFKMIKLYIDKAISSISIDNN--LAVCSSDPTVFFFN--ENLIGFVDLPFCQAITYG-----	-----
Lb	-----VEDRGVVRTLLASICLVRWVPEMETCLLVVCONGDAFLVEPKD--GDAETHTAEAFVRSWRDLDFPITDALVC-----	-----
Ag	-----VKLFGRLYLSRHPVIVSVFAIADSRFFGAVDATGOIAILELSDG--WQMNVLQVFGELGKAKHLFMWCS-----	-----
Da	-----DPLVHNCFHILIREPLDAAKFSQSGRVLGVCSTRAGRIFIVRGFEG--NIHVWGLLEISEKIADYLIYED-----	-----

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Hs  VLSS-----LPEAGRSRLEMFLLPTLLPOVS--TTFADERGRLLKDEIIH-----K
Gg  VLLS-----VAENOOTRLEIFCLSSALMEDI--DKYVNDQGMNLVNSAIK-----K
Xt  ALICPV-----NEGKEEKGGTRLEMFSLPLQLMLSSP--SEYIDEKGMFKDAMVO-----K
Dr  VLCN-----KSEKEISFGNVLLLLTLFAOQLTES--TSCMDAHCGLRKEVFD-----S
Sr  VLCS-----KTEREINEGNVLLLLTLFVQQLTDS--SGCVDVYGCLCKDALH-----S
Ci  AVMSQ-----SNDNGDYDSNNLIMFSLTSELLSNTD--GHFVSLRNNFKDTSVK-----LTR
Tb  -----DGDVINIFVHSVVDKDTKMYALERQRVKESKPLRPYF-----LM
Tviv -----DDDVINILVHSVVDKDTKLYVLERGRDKEGKPLRPLF-----LM
Vc  -----SDVLDGESAFISLAGGGIMSLTASAEELTSGNWRNPNPDLQLV-----RPTAVAAHGSRSLSGSDNGDSGPGSGAPEPVVV
Cr  SGHAQAGPVSTTSAEGDEPSCLLSLAGGGMLCLTASAEELHSGNWRNPNYPDMVLL-----VTI
Tt  -----LPTHKNVLFVLLNYFLISLIVPDATYONKDLKIDNDVCP-----V
Pp  -----PNQKTSAFALVNFFLIAIIPPNDDEEYK--ELNLGEEVCP-----L
Pt  -----KGOLFICICSFLLLSIPOPKOSSSLKLEVOI-----
Lb  YVT-----PDVNLNLFVHSADHDSKVYMLDRQREGDGKVSRLPF-----LI
Ag  -----SQEVLVVOPLETEDSISFSSIEFIVKQHSLEETTRT-----QL
Da  -----ETVTLTLVQSNKHVAVGKYIAVYKTTGPDYFELRD-----VV

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766

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Hs  YLYELEHALSSAVLGFOSNO--IYGFCSQVPIYCSYLLPEEEHTG-----IYILKPKYKKVQSRQYGPGLLYLSSHGLWLITIAK
Gg  EQYDLEYPLSSAVR--LKDDI--VYGYCTCAPFICKYHLSKQSILED-----PPVFLSEKMIPSNQFGAGFICLSPNSRWLASAAK
Xt  ISYDVOOPLFSAVLGYNVSS--VFGFGSYAPMLLKVIHKEISGDP-----LTALVTEKVVRGSHLGGPVLCSPHLKWI SVSGR
Dr  CVLELPLNSLCSCVL--AVNK--IFGYCOQRKVLQRFSSIPENGENPNN-----VVQLIPEKETGGHLLSPAFLQLSPHHTWLASVGR
Sr  CLYEIPHALCSCVL--AINK--IFGYCOQRKVLQSFRIPESGVKPSNAQE-----AVHLILEKEAGGHLQSPAFLQLSPHQS WLATVGR
Ci  HSLSVSVDSAIVTTIGDNIE--IAALSSESKNLLQFKLPHTTQG-----PTPIHPVSEHYGHOLS GGSIIILSPHGKWVASFAP
Tb  RDHECGGNVLRQLGGDSIISAGGDGRVVVRDISHYLMKLPVPPTKEK-----KHPLKEFLLRPFGRGGITCLSVWNAAGGFVCGGN
Tviv RDHESVGTIVLQRLGDEKVISAGVDGRVVVRNISHYLAKLTPIPPSKEK-----RNPICDYALRPF GKGIRTLCVWNTDGGFICGGN
Vc  RLLRLEVVPVLA MTTAPHDRGTGELYGLGADKQLHKVALPAEAAA WAGLR-----ARPFRSSVHVPAHARAGGGITMAPGGHVLVSGGA
Cr  KLLRLEVAMLA VAAVPGDRYGDAYGLGADKQLHKLVLPAEAAA WAGLR-----ARPLRSAQHVP AHARAGGGVAVAPGGHLLASGAA
Tt  YARKIDPDMNHIAVNOVTGDILMTGKDKIVKRYKQPEELYAKMDTRIK-----VGGAP--IEEQDGHPLPTNAMIISDQFNLLITGGQ
Pp  FGRKTDNNLNLV VHPRTGDVITTGKDKMLKRYOOPDKLYOTL DLKLLK-----AGEDP--LDEVDGHSLOTNIMRIHSQNNOLISGAO
Pt  MGRKIDPDQTL LLIIVTPOQ--EVITTGKDKIFKRYKPEELLSKMDL KMR-----VANQPPVDEQDGHQLPATCLA IKD--FLYSSAK
Lb  HDHSSGGSC LLRLNDSTVISCGRDGSIAARDLTPYQTQMTPIPPSREK-----RKPLVWHAVRSSFFGGGITTVATTDITGAEVICGGN
Ag  RLPKDYCHIIPK CAGTNLNFYAYEIRTNVIDLLEITRTDADIDVLLR-----TIKTPLAVSHLELCVDDRYLYVWSM
Da  KLPRVYASLHCGSDFGEIIASPF LSKQLHLIKS EDNFDFILTEALS-----SSHRLRDVKINADTRYVVTFGY

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Hs  CGILCIRDVYTTLET-----FAWCRSHSHQGHGHIQSMRISMDGONILVNGRDDGTLVYL--KWKRFGGH LASEILDYYOKLLI
Gg  DGVLFIYDTSTMEI-----LAQNYCHSYEGGGRSMVFLDGLFILVNGENDGTLVCL--KWKKIKEIEVKEAD FHWHSLLT
Xt  DGIVYVKDIKNMET-----VAQVOCHSYHTGGINSLSFSLDGOSIITGTDFD GALVCL--OWKSTGSSRLGA AVEYGKAFTL
Dr  DGLLRICEIEMDR-----YVQLQCHSCWQGGVGSVCFPTDPSQTIITSGLRDGLSVC--RLKLSGVG KANAATQYSQSVAD
Sr  DGLLRICEIEMDR-----YVQLQCHSCWQGGVGSVCFPTDPSQTLITSGLRDGLSVC SRLRLKLSGAGKTNAATQYAQSVAD
Ci  DGDVIVRDVSNWDS-----ITRFOPHSYIHGGVKTTLTFSPDASHFISVGYSDOACMCYOWNFTSKGQSAGNNAVEYARVLMN
Tb  DSVVHLVP-----VGKSPIHYSWSEPFWHQRAISTSPSRASSP--SDAETLSAER-----
Tviv DIVIHIIP-----NGSANIEYSWTEPVVWTRSFSAASGCSSP--LKSEHNILGQ-----
Vc  DGVIALRNLNLAALGDSSAGGGIGGSVLHDTVAGGVSVSFDATGRYFASAG--ADGAIIVFEVGP AAGAAHLLVTPPWPAVPPFAG
Cr  DGTVALRNMSLITLAAQQGGDAG--AGLHDLITAGGVTVSFDATGRYLASAG--ADGALFYEL-----
Tt  DGSYILRNLEKLS E-----FOQIKSHNWKINGVSTLDFSKYKLYL YSGG--YDGSFFAWSLD--KVSFQNIORN--YEILRED
Pp  DGTIFIRDLNLM D-----YHOIKGHNLKRYGVSYLEFSQKYPLCYSGGNGDGSFFVWK FONEIMFDODNIELPPQKVLEEN
Pt  DGTIMFRSYQQLNOD-----VRLLRGHNLKSGGVSTIYVSQKFKMIYSGG--FEGDLFWWTG EK--IRGDSDA AQLMKSNNAP
Lb  DGVIQCVTILKAEGA-----HATWQEPQWTHAEARLGI VGDKITTVQAG-----
Ag  DGKIALYELLTVLCH-----SGMLTVLKLLOPIPOS PNTMSNTSKSLPCEAENS SLLDETVIDA AVPWIEQAERERWEEKGK--
Da  DGLVVIRNRSNLSQL-----IAVLTTHHRQEGGVKHAVPCPNSILVTLGKNGNLVASKISQLESAE VGDHVT SFADAKVVLS

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Hs  SLSSAMDKENHYLSTTPKVSVDLGS--DSE-----HTKQK-----ASTDLSODELVLTD-----VKKEIPWIQQKSQE-----
Gg  IILNKSIDENAVLRILMAEWOLES E--TSESLPEEKSKKSPLEPSSAAVTE DGSFTSLHSDSASEMTWLGQKTEK-----
Xt  SLOAMKEENQMLSRMP EWTADTSS--MAVESKEKEYRN-----LSVDVTEODTFPN-----TSADVTWIYR KLEEVQRNLCIYSR
Dr  SFESVVSSENTIVLTKM TDRD--SFHTGEVSLK GK--MSHEAEQEENYFVS-----PTS YTWLDGK LDA
Sr  SFESVVSSENTILSKMTDWD POTOSLITRCSSFLTREGK-----TSHEAEQEENYFVS-----PASSTWLDGK LDA
Ci  RLRSVMDVEGDVLAAMEEW--SPSTKIATPDQEEQDSD--VTRPKSGARSEVTMT P--TPTPQSDATWLDAR SLL
Tb  -----
Tviv -----
Vc  SVTAASRVEADAIDDA SELTEVELVRRQGALETGGING-----
Cr  -----
Tt  VNIQDLPDEKVMHYQK VLEEELIKSKKEVN-----
Pp  OMIMDVQDNEVIHYOQ ELQEEFIRSOKEIR-----
Pt  MEIQDMPDQEVRY YQVLESEFLEQQAPIR-----
Lb  -----
Ag  -----
Da  NSTGVELDGDGDSTWIELKEIRKLERERN-----

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1021
Hs -----AIKKEVNLFSKRRKEIKOGIKSLSKTILNMMEENDK-----LENIAKLDQOQFGLDLE
Gg -----DIREETERFANOKEKLOMGIKKLRKTIQKMMHENEQ-----VPDIEKLGQOQFENLDME
Xt **KCCVNSIFWKRNDNGYVLNTNVAVWVKLHLFAKKKETEKYAAEKEIKTG**IKKLRKTIQAMMRENE-----LPDIEKLDQOQFENLDTE
Dr -----VLOEEAQOYAE**TKKNLRRNIKVLRDTIKAMMEENES**-----LADIEKLEQOQFENLDVE
Sr -----VLOEETQOYAET**TKKNLRRNIKVLRDTIKAMMOENEN**-----LSDMEKLGHQEFNLDVE
Ci -----AVKEENAKYDEVKRD**LRKNIKELRKTILGMMENNNNS**-----LPELEOLRHDEYNLDTD
Tb -----**SRCRIISALADLRMEVEKLLQERTP**-----TVRAEDFLLP-----E
Tviv -----**SKSYILSTLSELREDVGKLLVERTA**-----AVRAEDFLLP-----E
Vc -----**ESKRAAVVSKLMSLRSRIGELLEANOQ**-----VPELERLERSSELIVDVG
Cr -----**SKRAAVANLATLRRIADLLAANA**-----APELERLTRNDMIVDVG
Tt -----**EOSKKVIEEGLKKIQNKLLLELDHNKNEAEELEKLERDDFVIDID**
Pp -----**EKQKQEIQSNLGKIKSELEVLLNNNEN**-----AAEELKLRDDFVIDIE
Pt -----**EOKKROTCDLLKQIOTKLNALLOENAE**-----SDELEKLORDEFVIDLY
Lb -----**DAAPEREALLAVSRVRELWVKVMSDKDT**-----EVPLEAFLLP-----E
Ag -----**IYEPEHEAIFAEFGEIKHOLKELLNHNER**-----APVEERFPLOVFNLNAE
Da -----**EMAIERASILSDFEKLDRDLKALIDDNEK**-----ASEAAKLPLENFDLDKE

1106
Hs **ELERLHDESOEFVAKMIKDVEMHNLA**KS**SYLAELIKEECWNSMAVKG**RALKCFHIP-----CVVENFPMKARTVEELKELERVLOOKKIE
Gg **EQERAEAEAEQ**EVARVREKIEME**ILLANCYLQDVIKHECWD**SMCVKGRAVKCFRIA-----CEVKNYPLKKRDEEELRTLEKVLRLRNIE
Xt **EQERLYLESEKEVARVROEIE**LENLSKOYLREVIK**OCWDSMAVKG**RSVMAFHTG-----YEVMMNPKERTPKELEDFARVLNLKKIE
Dr **EQORLQLEGDQ**EVNRVRKEIEMEN**LAKSYOREVLKRECWD**SMQVKGKAIKAFHSE-----NEVKNYPMKERTAKELEELRMVENMQIE
Sr **EQORMOLEGKQ**EVTRVRKEIEMEN**LAKCYOREILKKECWD**SMQVKGKAIKAFHSE-----NEVKNYPMKERTAKELEELQRIETMRQIE
Ci **EOSKMOEODORVOEIREEIEFENLA**ORYLAYLITK**OCWDDMVTK**-----VVLSPTTOPPVFPVKKMOSETGTK-----
Tb **QROAFNEECEMEIHKAREDDY**SLVHNEFVQHTIK**TECWDVMEVORSKIVSMTDP**ETEVHNFHLRKP**CAQR**AKIQKKIKLMRAIQ
Tviv **ORDNFNADCVTAIQ**EAKEDDYRMVHNEFVQ**HAIRRD**CWNTMEV**POSKIVSLTNLSE**VFNFLR**KADPTATN**ILRKIQFLRKLO
Vc **LVERLKHDT**EARVA**AAVRRN**LRTELLAERLR**RMVWDHLAVK**GAVVSGLRSS**L**-----VVNNFPLTOPG**HERVLR**OVTLRRRVE
Cr **LVEELORETENRVA**AVQA**AVK**EHLRTELLAERVR**RMVWDSMAVKG**AVISGLR-----APPGOHERVLKQV**TMLRR**VE
Tt **TKNKILD**SGKOORKQIKETAKREN**LKOEI**IHSKIK**KEKTWDM**AVOLKGINGL**KSK**-----YLVVNYHIRKRTADEERKLKIVKDLRRIE
Pp **TRDOILK**QGEIECEKIRE**NAOKENYKOE**ILHNRLLEKT**TWNTMK**THLKAINGL**DTN**-----IIVVNYHIRORSEK**ELOOLK**WIONLRKIE
Pt **ARDAILEDG**KK**QOQ**ALRDLV**KKENYKOE**ILYOLIKERT**TWQIE**IP**LKGVN**GLIQH-----IIVTNYHIRVROSE**ETRKL**KLIRELRKQIE
Lb **ORDQFAA**ECDS**AV**FD**MREGHY**YHAILNEYL**QDTLRR**CC**CEAM**EVTRMKVVS**SMKTS**ELEVHNFH**IHRRT**RAEAS**LSRK**ALFLR**LO**
Ag **ATEKL**TOEANHT**KDEE**KKR**LOOF**IESOKDINE**KLIENC**WMIMTK**PKPK**IR**PMFKK**-----AFV**ENYA**IV**PANEYR**-----OHLEKVRVYRETE
Da **GRARAIEN**NR**EEQ**KNLVR**KL**E**KAS**REAEIS**EFLR**KL**CWDS**MOV**PACAL**ISLDGR-----VRVDNYAL**PRISD**Q**EEERR**AWAKFYVDLS

1191
Hs **AECLKLRKEIVEAOSGVKLIKORHEE**-----
Gg **AADLKVQEKVLETKSKTVLFKEEN**-----
Xt **AVDLKVRKEIVETOPKIKADDEEEVE**-----
Dr **QEDSLOQEGVLDTLFGDKKEE**-----
Sr **QENSLOQEMILNTISGDKEQEEAE**-----
Ci -----
Tb **IKTEECFTLSSLVKRAK**EGNLCTEQ**QACGP**-----
Tviv **LKVG**DHFT**FASVK**FGN**KEGEV**GEIP**AAPQD**-----
Vc **LLEHOALGVVPYN**-----
Cr **LAEQAALGVIPYG**-----
Tt **IREQ**KARKEAKD**OV**LKEI**IP**V**ED**L**IKK**PEEYI**INAG**PGK**QKLV**LIDY**EKKEE**T**KDD**-----KNKGAGTT**TOTGPAG**-----OT
Pp **LKEOKLR**KEN**QEQ**-----E**IVD**IFEFID**EP**NY**IVNG**VAEK**POM**V**LIDY**E**AO**EEAK**QO**EAL**QAQK**Q**KINTI**Q**QPAK**G**KGMGN**Q**OOA**
Pt **IREL**KIRK**Q**-----**QAIKE**AW**SIEE**H**IQDP**-----**KYI**IN**SK**PGA**QTM**V**LNDY**E**KKEE**V**APT**-----**KVA**
Lb **KKSAVGRRT**-----
Ag **LNASHDALLP**-----
Da **TKLSSAEAAHG**-----

1276
Hs -----DDEEEEEEDKT**VKYS**NLPNYLL**GSL**STDFGV**DTSL**SS**QLE**LHS**R**E**E**KINQ**IIL**
Gg -----TE**VMAG**DTAS**CCL**VG**SLSS**QY**GAD**TS**ILY**H**Q**LDLHS**R**E**Q**KINQ**IVL**
Xt -----EE**SVSK**Q**DSS**LV**GS**LD**LY**GG**DT**S**Y**LS**Q**LILHS**R**E**E**KINQ**IIL**
Dr -----V**SL**TES**PAL**T**GSL**SS**LY**GG**VN**P**Y**LN**Q**FN**LHV**RE**Q**KIN**QITL**
Sr -----D**SK**TES**PAL**T**GSL**S**ALY**GG**VSP**H**LY**S**Q**FN**LH**IRE**Q**KIN**QITL**
Ci -----**QGG**DEDEE**EEKV**GL**SL**HL**GS**L**PNYS**GG-----EM**FYS**Q**FD**L**H**T**R**E**E**K**ITQ**I**L**
Tb -----P**SD**V**DE**LL**YD**T**L**D**VY**T**G**P**RAT**I**Q**I**L**
Tviv -----D**IF**L**ED**N**T**ALL**YD**AL**D**V**Y**T**H**S**RA**I**I**Q**I**L
Vc -----**FMFR**GS**AF**ES**AG**D**GDD**N**YD**GS**TP**TP**DA**AAAAAAAAA**VA**AAAA**SAT**GA**AG**S**DP**DT**LM**YS**DF**DL**H**C**N**TR**AL**Q**I**L
Cr -----L**ID**FD**V**C**N**TR**KAL**Q**VL**
Tt **AGQ**FG**GR**AR**H**GA**AA**Q**AK**KEE-----**KKV**EE**VH**HEE**KEK**KE**VEE**KE**EE**K**DE**D-----DL**GE**W**DF**L**Y**G**A**F**EL**FT**N**NR**K**NQ**I**I
Pp **HGH**GH**GM**GR**OR**F**N**Q**AK**PK**QO**VD**LK**V**D**KE**EE**AE**OK**KE**Q**E**K**Q**E**SON**EO**EN**NG**ES**AL**NE**W**K**Y**L**G**A**EL**FT**N**NR**K**NQ**I**RL
Pt **AK**PG**V**GG**VO**ON**IK**OR**Q**Q**Q**Q-----**Q**Q**Q**Q**EE**E**K**R**Q**EE**E**K**Q**E**K**LE**K**Q**Q**-----**Y**E**EL**T**EW**D**Y**L**G**V**S**E**L**FT**L**NR**K**NQ**M**IL
Lb -----V**P**GL**Q**IM**S**K**TAT**P**AD**G**SS**S**G**T**ED**L**DA**AM**L**N**D**AD**VY**T**Q**S**R**M**V**L**Q**S**L**
Ag -----**W**K**P**T**P**T**Y**OL**ES**IL**NR**D**PE**Y**AN**EL**N**L**AR**AS**LE**K**S**Y**AL**S**G**T**T**H**OFF**O**P**Y**AL**R**YD**OL**EV**V**T**F**E**OL**Y**F**E**L**I**Y
Da -----**K**A**IP**P**T**K**Y**Q**ER**E**P**IE**K**AS**E**K**V**L**N**L**L**K**G**DD**N**D**EE**E**K**F**AL**S**G**T**T**H**R**W**IR**E**D**P**S**R**V**N**Q**IL**RD**G**SH**CE**G**V**K**R**N**IL

1361

Hs LKDIYKVKTVFNNEFDAAAYKQKQEFETARVVKERNVRIEILDLLELEA-VWQPEFFE-----DCEKPER-TLVVQDE-E
 Gg LKDIYKVKTAFNKEFDIVAQOKEQETARIKERNLRIEILAOLOVE-VWEPGLT-----CDENPEQ-VLTVQDS-E
 Xt LQDIHNIKKAFAFNKDFDIACROKEQEVTRVKERNRIQEIIMVELNLQEK-LLEPTFT-----DNEKPER-ALTVDSD-E
 Dr LKDVIYVKSFAFNKEFEAVYKQKEQEIHRITKEKNRIFOIMAKLGISET-LWEPRLT-----DNECER-ALTVTDSE-E
 Sr LKDVIYKVKSTFNKEFEAVYKQKEQEIYRLREKNRRISEIMSELDLSET-LWEPRLT-----DNECER-ALTVTDSE-E
 Ci VKDAIRRIKSSFNFAFTNIFRNKEQETIRTRMERNVRIEIMKELDLADSVKDPQMD-----VDEKPEK-VFIVTDD-E
 Tb LECKILHEKKSFNIRFDLTLRERKSRELNLIAERNRCVRIMQOLGEHTCPPNVLFTP-----VFDIIEE--
 Tviv LTGQTRYLKKAFNSRFDALRERKRRELGLLIEERNDRCKRILQOLGDTTCLSDILFTP-----VCDPNED--
 Vc LRQKIRNLKVTFNDFNRVAAQKRSDCDRIADLNARMDFTVKDLRKMGGGFG-----RVRAT-VLSVRDE-E
 Cr LKQKMRDVOAGFNDFNKVAAAKKADCDRIADLNARLDDTLKDLRKLKAGPPAGLLDERFSLSAQODTRDNIAAT-VLMVREE-E
 Tt LONIIFKVKKEEFNKEFDKMMOOROVQVDMIAEKNKRIQEIILHELHKEEIEFEPN-----KNILENPER-VLEVDPS-E
 Pp LHNIIFVSVKKEEFNKEFEKMAORSKELDOIQRNKKIEEYILELHKEPEYQEK-----QNILEOPEKNILEVDPEKE-E
 Pt INDVIFSMKROFNAEFELIQKORQOQLDNINERNKRIEINGELKRDPOQLMK-----KNILEDPEK-ILIVKPE-E
 Lb VKGRSLALKDAFNTRFTDLQDLKROSMOVEERTLRCTITIGKOLGSLPAOLFATAVD-----PEENPNS-LFVVEDK-E
 Ag GDLEIEKLRTLFNEKFEQIKTLKHEEMELVLRNRRARYVQQLVFLGNLMADRNFVTEIETPKYAADERPDT-IHTEDSE-E
 Da GKIREEKLKHFNKLFEAMHSRKSSEIKLARERARIDHCTLELRQMFQVDC TVDHSWLKLEWQ--ESERPES-MVEVEDE--

1446

Hs ITAHKHIKPPWHKAK-ELIVNHEKEHWLLIQDASTRLRALMDMMGGVLEVKKEDILRMVPIQPAFMA-----
 Gg IKVEKYLTPQEREKAEMLTRLEMER-HLASLDNERORALNDMMGGVLEVKQEDILKIDIPPPSFIS-----
 Xt VKVERYLTPQEKAKAEKLAKKEEAKRLAEQEDNAKORALDDMMGGVLEVKKEDILRMEVPOPGFIA-----
 Dr IKVEKYLTPQEKKEEQLREEDKORLAAKSDNMRDQALSVMMGGVLELRKEDVLRMEVPOPEFMS-----
 Sr IKVEKYLTPQEKKEEQLREEDKORLAAKSDNMRDQALSVMMGGVLELRKEDVLRMEVPOPEFMS-----
 Ci VITVERVLSKEOKEKEEOERVEQERKEAAKODNKRERALTDMGGVLEVKKEDALKODIPTPDFMDE-----
 Tb -PQTVFEVFDSEIDPELLKLAVKSDDGELVVSDEAALKTWMGDLEKVTLEVLRVNVPPIPF-----
 Tviv -PTAIFEVFDSEIDPELLKLADKTDDNAYVMSANEAAKLTWMGDLEKAVLAVNVPLPPF-----
 Vc VGVERYITPEERARKEAARRAEAEATKRSARDNAGERALRQMMGGTLPARGG-GVDGDGNPF-----
 Cr VGAERYVSPAERAKQEAARKADEDAAKRSKADNAGERALRQMMGGTLPARGG-GHD-ESNPF-----
 Tt IAFKKFLTREEREKIERDRLREERORALKQDDAGVRLKDMGGTLEKKENPLDEGLEMEEWMN-----
 Pp ISFKKFLTREDRKKIEEARLKEEERLKALLADDAGRRAVOOMDGTIEEKKENLLDEEIKKEEWM-----
 Pt IGFOOYETREMREKKEQERLKEEARLKALMADDSGVRAVKDMMGGTLEEKETPLDEKLEVEEWM-----
 Lb LSAAEQALIASMGATVVS-PVDEAALPLWMDGLEKEVVRLEHVPLPDFADDTTRDTFIPPE-----
 Ag IPVAPYISPSVERLLELEERERRELEDDFKDRALVTMMDGVLEHRWEDEIKKSLPLPOCLVFEAICGQYRLTLFVVF-----
 Da EVYRVINDSGSEANVKRLDNSVTRRETSVLADTFRITGELKMMMDGVLEVKWEDEIKKDIPRPDCLMK-----

1531

Hs -----KPDVAVTTEERKQFKDYKVKELNEERDKYRKSLEAELKKLONSIQESTQAFDEHLKRLFERRVKAEMVTNQEELKISN
 Gg -----KPEDEWTAQEKKIFREYEEKVKELNEEKYRRTLKNKLEELASIQEMTQNFDKTVCKLFRKVNLEKVIYQEEELKIVN
 Xt -----RAEAEWTDDEKKQFKKEYEKKCKDLSEEKEYSKVLEAEMKKLQLSVIEETTSQFDDVLARLFEKKVKSEMAIYQEEELKINN
 Dr -----KPEAQWTEERKSFKEFEKAKELSEEQEKYRKTLETMCKLLTSIKEATQMFDEKLAKLFRKVKSEMVYQEEELKIAN
 Sr -----KPEVOWTEERKSFKEFEKAKELSEEKERYKTLETMCKLLTSIKEATQMFDEKLTKLFRKVKSEMVYQEEELKIAN
 Ci -----KLEKDWTDDEKKKAKEHOKKLDLOEEREKYRKNLENELKLOONNLDAITNYDESLOOLFNRKVKTEMVVNOEELKILR
 Tb -----ADNSLEQYVPEE---ERSDEQORIFEYKEVAEQTVLINEKELLRGEVAALVKANMTSAKAIDDEIDVLRITDRML
 Tviv -----ADETLDOYVSPD---ERTDEQORLYEYEQVVEQITLVNEQKEALRQELVALKKANDASCALIDGEVVALGDERMK
 Vc -----SLPPPPWLAAMGLDPTVNPKMLSEEQARELKDWAQAREKNLOEERARRVGMLELRTAKAAVEDVVGRFDEALAG
 Cr -----SLPKPAWLVALGVEPDVAVNPKLITTEONRELKEWQAKEKSLQERAKRITVLEMLERTAKAAVEELT-----
 Tt -----KPLEEMNEEERVRFKYEVVKQRLEEEKIRKNLENELKLLKSDVNEICQKFDKLLITFKRKLFDYRVEQELYIVK
 Pp -----LPEEELNDEOKIKLKEYEVNLOKQOEEKDKIRKNLESOLKLLKQEIIVEICQKFDKLLILFRKLEFDYRIYEQELYIVK
 Pt -----KSPDDMTEEERMKLKEFEVRKQKLEEEKIRKNLEAELKLLNEITDICORFDDKLLILFRKLEFDYRILEQELSIVR
 Lb -----ERTEEQTRIIIEAYAKRLKEENECVEAKREALRGEFKSLOEKNRETAAKLDEQLHQIRQLRINTAAEVDEAELQLAL
 Ag LQEIQKEPOHYNETDIREVNEYEDOSRVLHQRERLRYRKMLODELHELALISLDEQIKRFNTAVAKLTLQKIVIEAAIRQEEMLLR
 Da -----DPSSCSADDLRIIKNYEALRRLLEGEREKYRKCLEKEIEELTESLKSSTHFNREMEFLYKRLKVE SAVLQETLMRLR

1616

Hs LAFSLLLDDEELSSREKFLNMYLTKRQHEKSO-----TSEAVRKSREDLDVCKEHYDNLLAEDKVMDRSFKKFESE-IPGHQVDIL
 Gg LTYSLLLDDEELDREAGLRYFLVKKQKEKVK-----IARTVEVTKRKIEFYTDQYDNAIAEDKNLEYGFRKEFAH-VPASLLGEL
 Xt LLSLLELIEEIEINTRVAHLAHLIDKKRKOQNO-----TAEIVKSFKTQVLAFRESYDNLVAEDKLLDRGFKKEFS-ITSYQVDQL
 Dr LVLSIQTEEEIILTREKQLSFKLEKARIKKNE-----IGEELKHKETVDEFREAYDNTVAEDKLLDKGFRKEFYD-VPGHSIDQL
 Sr LVHSIQTEEEIILSREKQMSLKLEKARIVKNE-----IGEELKHKETVDEFREAYDNTVTEDEKLLDKGFRKEFFD-VPGHSIDQL
 Ci MTQAIMVADELATHEDQLNKLLELKNKFKAS-----SSSRLEDIOMLVKDYEEINDSTIAEDKMLDRAFKRDFS-VPLSISDQL
 Tb VAQLVDELELHQVN-----ALCLFLLKKTIRNKFLGVKREEDLLCRLRQ-LDSLIEYRQL
 Tviv TSQOVDALELQOVN-----ALGRFLQKAIYREYVSVLQEKAVDRCRLEQ-LKNLESHRQ
 Vc LAARRHR-----VAAVAALERTLALAGLARC AKTSEAVEKOLLARLGA-AKEAHGRA
 Cr -----SEAVRGLLARLGA-AKEAHGRA
 Tt LAQOILKOONIIIQLDQYDVTINKLTDQVRKQANREILHEFKQEV-----ONKNLQDQYQNSLVNPKPSYGVDPNK-IRNIWVYAF
 Pp LLSLMIEDKYLNIKLEETSELSKDLSDPPSNKLGAGIDEFYQELARROOLOREAQNYFKNERALGDLOGLDLGG-LGLIWTKVF
 Pt LALSIIISQAQLRVSELEKHLHDEMTAQLNQLQOMKNNLDQTRDLTQ-----OORKTLNDQIVNYFNRGOTAGMDANK-VKILWOYAF
 Lb LFOHR-----LCVSAAYRQHOSMAQKREALRDGRTE-AEFIVAQQK
 Ag ATLYNHARLVYDANVARLRAQIEONADYTDQ-----LTEVLNEFOEKAADYRNTYDTRTKDRLLDKQFKINFSDTAQSALVDOA
 Da ESORHHLRLKGMFAFAHLELNLAPAQERTK-----KLIDSSALESNVNESRVRYDNLKSRDKLLEGGFRGEFTD-LKQPMVDHL

1701

Hs	YKLFKRRPRISKOK	-----	THSETTSVVPFGE	LP	SGSLKLNKDAFAOLMKAMDEL	DNISNMPEG	-----	LDPLVWNH
Gg	VELYKCRPRTVMTE	-----	IYLATANRSKSS	--	SVSAEDYKDALSRLMKAMDEL	DNPKHMPNG	-----	LDPSIWEK
Xt	YKLYKRRPRVORLR	-----	TQTDAAAPFGERP	GS	AKANKDS	--	IALLMKAMDEL	TPENMPEG
Dr	YKLYKRRPRVORMK	-----	TQTE	---	PFKEG	---	AAPSDGLSLMMKAME	ELDAPAHMLEG
Sr	YKLYKRRPRVORIK	-----	TQTE	---	QFKEG	---	ALLGTAPSDGLSLMMKAME	ELDAPENMPEG
Ci	YKLFKRRPROOKPR	-----	TLAERSNSLDPY	GV	SDFSAEVTIFSTODGLAELD	SEVNIPEG	-----	VDSALWER
Tb	KLYLASEARVQDCI	---	EEENM	ITDMRCLPPFTDP	DWGERLNR	RFTTWR	SKYEDGLAKVPE	PTRS
Tviv	SLLTSAEEDAQORI	---	DDERSLISNMRHS	PPFSD	DPDWDGLYRRFTKWC	TRYEGGVAKV	PNP	GONGV
Vc	ADLTERRTALTELE	SKHAAAAA	EEROLD	RNFKEFV	DADLHFN	LLHMYRARRSE	QLVAAAMG	ITPEG
Cr	SELSERRAALAELES	SRQAOLG	ADERLMD	RNFKFE	AEADH	LNRLLOL	YRARKPE	OLASMPGGGKPEG
Tt	EEOKKDERKKKEIE	--	DKIMNDPKYRNE	LQKLD	PFIELN	KEIKKKLD	GIFDSYVDDIRE	KITNMOMFE
Pp	KDOKSALEKKOOE	--	EKLLK	DENYKSEL	VELDPL	FDIKNN	IMKSOON	DFNNYKLDIQOKATS
Pt	EDOKTNERAKOQOD	--	EKLLK	IQYKQ	VDLVIQ	IDPLFEN	OKKII	ISAQLDEQFETYLF
Lb	HLLRAAQARLAAA	---	SKTGGY	AASVRALAP	FEDGTT	GKELHRR	FVRW	ORRFVDGSAPLPDAD
Ag	YKIFKRRPKTOLRS	---	IVTVSV	FQDMAKR	IVAKKTP	GTHGN	LLLPKEC	ODYLAHCE
Da	LRHYKRRPRLGOLT	---	CTSIT	YLT	EMGK	CILS	GEKSE	ILPRECLDYSK

1786

Hs	FCMTRRAKVENEQVKOK	KAADLLEMATFLO	KRV	EEEEK	VQO	EIERVFHELILLO	EEKVRF	QNLNTIQ	ILLKQGO	VELEN	-	FOLVL
Gg	FCLARRNKLESEQLVK	WMALILAEIE	VFLO	RID	NEK	MSSKIENIF	KELIWL	QEEKIK	LQVNL	TFO	FLKQGO	VEVES
Xt	FCLARRSKIEYE	QOVKIKAL	VLAEMO	AFLDKR	IEE	DEKIRO	TENIM	ELN	VLRSE	KMK	FOLD	LTVO
Dr	FCLARRAKVESE	QVKLKAL	TLAEMO	AFLORR	IDE	DEA	QLEIK	NLIDEL	NGLC	DEK	MR	FR
Sr	FCLARRAKVESE	QVKLKAL	TLAEMO	AFLORR	IDE	DEA	QLEIK	NLIDEL	NLSICE	EM	FR	LD
Ci	LCNARRNKVESE	SNVKOS	VTTLAD	MMKYLH	HHRONE	DEV	LEHS	ID	VIKOOT	KL	CE	DS
Tb	YCQCCRAVVEAR	KIHLR	GEADAL	NDE	VVE	TE	KKKAQ	FALDD	KEA	EE	ACR	KE
Tviv	YRECCI	AVVKA	EIAHET	ERVH	OYHE	CLVAV	VEKSR	LEEIL	TR	KKKA	AD	ACK
Vc	FTLYR	SSRLE	AEAAVR	ATO	VDL	LARR	DLPE	LES	R	EAG	L	ATE
Cr	FVAYR	AERL	AAEAG	ARA	AGD	LV	LARR	DLPE	LES	R	E	AA
Tt	IKDVL	QORF	OFK	ELDQ	SE	VEFR	DINNS	ITNF	END	L	FAL	Q
Pp	LYNLM	RKKF	ELE	KEYE	Q	A	EAN	LND	IDA	CL	T	O
Pt	LLOVL	SOR	FR	M	K	D	Y	E	K	I	D	K
Lb	FCDHC	Q	AV	AEL	Q	LV	ND	A	E	A	E	V
Ag	L	I	K	M	R	I	K	I	E	S	E	F
Da	L	C	K	L	R	R	S	K	V	E	I	E

1871

Hs	EYSDAILINKNII	EDLNSVIR	TQ	GOK	K	VAS	MMSK	DVH	KRILQ	I	E	W
Gg	DYADAIFIKKSI	EELN	CNIM	DQ	E	KKIAS	MVECK	E	F	S	K	G
Xt	SFEDAILLHRS	VIEDL	NSTIR	GL	GE	O	IAS	M	V	E	S	K
Dr	DYSNALLI	QRK	V	E	D	L	N	S	T	I	R	A
Sr	DFTNALLI	H	R	K	V	T	E	D	L	N	S	T
Ci	DYSDSIL	I	H	R	G	V	E	D	L	N	S	T
Tb	DFTDFS	I	R	W	K	N	I	T	D	Y	N	L
Tviv	NFMNF	S	F	R	W	S	S	V	T	D	Y	N
Vc	DMSDARLL	N	O	A	V	E	A	L	N	A	V	L
Cr	DMSDARLL	N	O	A	V	E	A	L	N	A	V	L
Tt	SITDAILI	P	R	D	E	I	E	K	K	N	R	I
Pp	S	M	E	A	I	L	I	T	R	O	T	I
Pt	N	L	O	A	A	L	P	R	E	I	E	K
Lb	A	F	L	S	S	N	L	R	W	R	D	D
Ag	D	F	D	R	C	V	L	I	H	R	T	D
Da	D	L	D	N	A	V	L	V	P	F	D	V

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Hs	LISIQIGIMEQ	TI	AVL	DK	M	H	K	N	V	E	N	C	K
Gg	YMAHRI	A	V	M	E	Q	T	L	A	V	M	D	K
Xt	RISDQ	I	O	V	L	E	A	T	L	N	A	O	E
Dr	R	V	S	K	O	L	T	T	L	E	R	T	L
Sr	R	V	S	K	O	L	T	T	L	E	R	T	L
Ci	K	O	S	O	O	V	A	V	L	E	O	T	L
Tb	S	L	E	R	E	I	N	K	M	D	A	R	I
Tviv	S	S	G	E	E	V	E	K	L	K	N	R	I
Vc	S	T	A	E	A	A	S	L	E	A	L	M	K
Cr	S	S	T	A	E	A	A	S	L	E	A	L	M
Tt	L	N	E	S	A	L	K	N	L	O	E	O	I
Pp	L	O	E	E	K	L	O	D	L	S	N	O	I
Pt	L	N	E	R	E	L	A	N	L	K	D	O	I
Lb	S	E	E	K	M	A	L	H	L	O	R	H	M
Ag	S	E	D	F	S	O	M	A	L	E	K	I	R
Da	G	V	D	K	D	H	I	T	E	K	S	I	L

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Hs --KIVKERYENMMOQKLTNISKQOAEQISILQTEVERLRMKTFFPALVQM-----
Gg --RIAKRRYQEIFLKQKHLRGLIEEQEKHLDILQAEAERLRSKTFPTL-----
Xt --KAAKERYVEIVORRKLVDLAKIQAOEIIELRTEVDRLRMKTFFPALVQMEY-----
Dr --TESDKNYODILLRKKLLAIARAQSEELLLLRAELEKLRMKNFSPSLSOLHYN-----
Sr --TEAEKKNYODIILRKKLLNIAGAQSEELTLQAEVEKLRMKNFSPSLSOLNYN-----
Ci --NTADKRLKGVORRKLVDLAKAQAEVAVLRAEVERLRMKTFFPALVQVER-----
Tb --DRLRERMRELYENSELEELARCOQEELVRLKNEVDRLREATFSPFAVVTRRTAR-----
Tviv --DRHSERMKELFEHSELGELARCOEELIRLKEIEILLRERTFSPFAVVSKRTRVRO-----
Vc --EQAARRMRSVLVTHKKLKEIALAQONELADLRGQVEKARLRITYPTFVELRNVAGMPTLPQRLPPDLKLMRARSEADRACGDSN-----
Cr --DQATRRMRSVLVTHKKLKEIALAQONELGELRQOLEKLRRLRITYPTFIESGAVAGMPPPRRLPPDIKLLAGSPSSSSSVAGRT-----
Tt --TDFEAYDKFKOIMNNRQLFTRVKROTEEIEELLREELGKLRKARTFANFTAVQKY-----
Pp --DADESRRKKFEAIARNRKLVDLGRROIEETIEAFRDELNKLKAKTFANFSVVK-----
Pt --QQEPQEDKFTQIARNYRLFKKAKEQAEIEIEILLRDELTKLKAKTFANFOQVHR-----
Lb --HARAARAKEIFCTSELEELARSQOEELVRLKHEVDRLRERTFSPFAVVSKOTR-----
Ag ---ATQDRMTAIVERARLVRLVQAQHTHILELGTMLELQRLKTYPTLTASTSVMTNHHLLGN-----
Da ---FVRAKLKAIMKRNRVLVKKIKDNYAELTSRLTQLELLRLKTYPTLRLKLDARHLRKN-----

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Hs -----
Gg -----
Xt -----
Dr -----
Sr -----
Ci -----
Tb -----
Tviv -----
Vc --VLCFDKICTPSHVPYLSDDVYATAMRPTPPGQ-----
Cr -----
Tt -----
Pp -----
Pt -----
Lb -----
Ag -----
Da -----